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ABSTRACT

Described is the development of a programed instruction manual in mobility and orientation skills for multiply handicapped blind children. Detailed are procedures involved in creating a developmental scale to assess five basic areas: use of a seated guide, seating, trailing, protective skills, and route travel. Results are reported for a pilot study involving the development of individualized orientation and mobility programs for nine low functioning multi impaired blind children. Additional research is detailed for a 1 year study to refine and validate a manual for classroom teachers and parents. (CL)

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A SPECIAL PROJECT TO DESIGN A MANUAL IN ORIENTATION AND MOBILITY FOR MULTIPLY IMPAIRED BLIND CHILDREN

Randall K. Harley

The importance of orientation and mobility skills for blind veterans was emphasized during and after World War II. The importance of orientation and mobility skills for blind youth in day and residential school programs was recognized in the fifties and for young blind children in the sixties. The development of specialized programs in orientation and mobility for multiply handicapped blind children is now occurring in many parts of the country. The developers of these programs seem to recognize that young blind multiply handicapped children as well as other young children need mobility to explore their surroundings in order for a normal sequence of development to occur.

Programs for the training of teachers in special education are just beginning to prepare personnel with competencies to teach orientation and mobility skills to multiply impaired blind children. Parents, houseparents and teacher aids are often called upon to assist teachers in the training in basic areas such as self-help, motor and language.

A review of the literature revealed that programmed instruction based on task analysis has been useful in providing parents and teachers with manuals on how to teach handicapped children to tie shoes, brush teeth and wash their hands. Project More at George Peabody College has provided easy to follow instructions in these areas as well as many other areas of the daily living skills. (Lent, McLean, 1976) Larsen and Bricker (1968) developed a manual for parents and teachers of severely and moderately retarded young children in which behavior modification principles and methods for those low-functioning children were modified for deaf and blind children. The manual is divided into two parts, the first being

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designed to explain behavior modification principles to parents, and the second toward easy to follow, programmed activities such as eating and dressing skills and toilet training.

A manual to help parents and teachers in the development of self-help skills in multiply impaired children was developed by Hart (1971). The systematic sequential steps in the teaching of basic skills in dressing, eating, toileting and grooming are outlined in detail. Evaluation of behavior for each skill is provided by extensive checklists with a rating scale for each task.

The identification of the skills needed by multiply impaired children in orientation and mobility and the construction of an instrument to measure these skills was necessary to design appropriate instruction for these children. Scales have been developed to measure orientation and mobility components in young blind children. Lord (1967;1969) used a developmental task approach to develop a scale for appraisal of orientation and mobility skills in young blind children. Significant and appropriate developmental tasks were taken from child development data and lists of skills compiled from experienced teachers. The scales included self-help skills, pre-cane orientation and mobility skills, movement in space, use of sensory cues in travel, and use of directions and turns in travel. Consisting of 26 subscales incorporating 124 items, these scales were standardized in 173 blind children from ages three to twelve. The subscales of this measure appropriate to assessing skills needed in independent and sighted guide travel were administered to selected multiply impaired children in the Nashville area who functioned at a preschool level.

After the administration and scoring of the scales, the subscales were adapted or completely revised to suit the needs of the multiply impaired

children. Certain general guidelines were formulated as a basis for designing this scale.

The revised items were reviewed by special consultants consisting of orientation and mobility specialists and experienced teachers of multiply impaired children. A decision was reached based on the recommendations of these professionals concerning the basic locomotor skills, sensory training areas, and the most important concepts needed by these children in order to travel independently within their environment. In addition, five basic mobility skills were felt to be important and within the capabilities of low functioning blind children. These areas included use of a sighted guide, seating, trailing, protective skills and route travel.

The revised scale was again administered to the multiply impaired children. Video tapes were made of the administration with selected children in order to help standardize the new instructional procedure. The revised scale (Peabody Mobility Scale) was used as the basis for programmed instruction in orientation and mobility for multiply impaired blind children.

The development of individualized programs in orientation and mobility to suit the special needs of multiply handicapped blind children was approached in the form of a pilot study by Harley, Wood and Merbler (1975). This pilot study represented an effort by a teacher-trainer, a mobility specialist, a motor specialist, consultants and classroom teachers to develop a manual which included activities appropriate to teaching skills in orientation and mobility to low-functioning multiply handicapped blind children. The Peabody Mobility Scale was used to identify and measure the skills needed for the development of a systematic program of instruction. A program of activities for teaching each identified skill was incorporated into a manual. This instrument was designed to be used as a developmental checklist, rather

than yielding a total score in relation to normative data.

Programmatic instruction was designed for each item in the subscales. Each lesson was divided according to the purpose, task objective, materials needed, pretest, and suggested educational program. Enrichment activities were listed at the end of many of the lessons not only to provide variation but to insure sufficient practice to obtain the desired skill. Each lesson was programmed in small sequential steps and flow charts were diagrammed with directions to the teacher showing when to give commands, when to reinforce, when to repeat cycles, and when to proceed to the next step.

The subjects in this study were multiply impaired blind children with special mobility problems who were selected from the Tennessee School for the Blind, Clover Bottom Hospital and School, St. Bernard Academy, and a public school program located in the Experimental School of the John F. Kennedy Center for Human Development at George Peabody College. There were five girls and four boys in the group. The nine multiply handicapped children ranged in age from four to eleven and were all severely visually impaired. One child was non-ambulatory and traveled in a wheelchair and also had a hearing impairment. All of the remaining children were developmentally delayed in speech and language. Three children were severely handicapped in expressive speech and language, but all of the children had sufficient receptive language ability to carry out simple commands.

A pretest using the PMS was administered to all nine subjects and profiles of abilities were charted for each child according to the results of the subscales. Specific approaches for the teachers were outlined based on the profiles. These individualized instructional programs were implemented by the children's classroom teachers over a 15 week intervention period. The five head teachers and their assistants participated in a special introductory meeting at the beginning of the project and were supervised

individually by project staff members over the entire period. Teachers were asked to keep a daily log and to make weekly evaluations of activities used with each child. Near the completion of the training period, teachers were invited to a second meeting with the project staff to discuss problems, share ideas, and make recommendations. The recommendations were recorded, to be used in the future revision of the manual.

The results of the pilot study tentatively supported the hypothesis of the experimentors and fulfilled the purposes of the investigation which was to test the feasibility of the programmed instruction in orientation and mobility with low-functioning blind children.

The following points emerged as the most important conclusions from the pilot study:

1. The identification of gains among the subjects indicated that programmatic instruction in orientation and mobility may be feasible for use by teachers of multiply impaired blind children.
2. The development of a scale in orientation and mobility for use with low-functioning multiply handicapped blind children seemed to be helpful in diagnosing particular weaknesses which need instruction.
3. The instructional program used in this study should be helpful in designing prescriptive programs of instruction for similar children.
4. Further research with a larger sample using experimental and control groups was needed.

A grant was obtained from the U.S. Office of Education, Bureau for Education of the Handicapped for a one year study beginning in September of 1975 to conduct the additional research that was needed.

The objectives of this more extensive study were to develop, to refine, and to validate a revised and improved manual in orientation and mobility for multiply impaired blind children. The manual was to consist of assessment and programmed instruction components designed to be used by classroom teachers and parents. The assessemnt instrument was to be designed to evaluate children's developmental levels in the areas of: motor and concept development, sensory utilization and orientation, and mobility skills. Profiles were to be plotted from the subscales in the assessment instrument and used to develop an instructional program for individual multiply impaired blind children. The programmed instruction component was to be designed so that purpose, task objectives, pretest, materials, educational program and enrichment activities are given for each subscale. Each lesson was to be programmed in small sequential steps with directions to the teacher or parent showing when to give commands, reinforce, repeat cycles, or proceed to the next steps.

The overall design for the program included experimental and control groups, with pre and post intervention testing for summative program evaluation and continuous data collection on an individual subject level for formative evaluation.

Nine facilities in six states were selected from a site survey. These facilities included: (1) four schools for the blind; (2) four institutions for children with severe learning disorders; and (3) one public day school for multiply impaired blind children.

Subjects were selected who met the following criteria:

1. Ranged in chronological age from 4 to 13 years.
2. Possessed a visual handicap of light perception or less (i.e., functioning nonvisually in the environment).

3. Possessed one additional handicapping condition.
4. Functioned on the preschool level between the ages of 2 and 6 years as measured on the Maxfield-Buchholz Social Maturity Scale.
5. Responded to verbal or manual communication.

Forty subjects were selected for the research sample. Pretesting of the subjects was begun in October, 1975, and continued throughout the month. The Peabody Mobility Scale (Harley, Merbler and Wood, 1975) was used for pretesting. The Maxfield-Buchholz Scale was also administered to assess social maturity. The purpose of pretesting was to determine each subject's developmental level with regard to orientation and mobility skills as a basis for intervention programming.

A profile of orientation and mobility skills was developed for each subject on the basis of pretest scores. The individual profiles were used to plan intervention programs for the subjects. Skills in which a subject had a marked deficit as evidenced by his profile were targeted for intervention.

Intervention was begun in early January, 1976, and will continue until May, 1976. Subjects in each classroom were randomly assigned to the experimental or control treatment conditions. Experimental and control subjects were located in the same classroom to control for teacher and site effects. This design was justified on the basis of previous research by the investigators (Harley, Wood and Merbler, 1974) which indicated wide variation in the qualification of teachers and quality of facilities. Three control facilities were selected at random from the nine sites chosen for the study. No intervention has occured with the subjects at these sites.

The classroom teachers and their aides implemented the intervention procedures. Experimental treatment subjects received daily lessons

(based on the manual) on the orientation and mobility skills identified as deficit areas. The lessons were presented to the subjects by the teacher in a series of trials. The teachers recorded the child's success or failure for each trial, on recording forms provided by the experimenters. The number of trials per day on a given lesson were specified and structured by the recording forms, to control for the possible confounding variable of differential amounts of training from day to day or subject to subject. The teachers received lessons for the target skills specified by the experimenters. This procedure was designed to insure a precise record of the intervention.

Post tests were scheduled in March and May of 1976. The first two sections of the programmed instruction were designed to be evaluated during the first 8 weeks of the intervention period. The second two sections were designed to be evaluated during the last eight weeks of the intervention. In addition, meetings were held with the teachers to discuss problems encountered using the intervention procedures, and to solicit their suggestions regarding improvements in the lessons.

Post testing of the subjects will begin in May, 1976, and extend throughout that month. Final teacher meetings will be scheduled following the final post testing to brief the teachers with results, and secure their final recommendations. These recommendations will be used to develop the final revision of the manual.

Statistical analysis of the resulting data and the final revision of the manual are to be completed in the summer of 1976. The results will be incorporated into the final report.

Dissemination will consist of journal articles, conference presentations, and the distribution of the validated programmed instructional manual.

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